Access to Restricted Data:

A White Paper

By

The NSLRSDA Advisory Committee

28 April 2000

Since the launch of Landsat-1 in 1972, the primary concerns of data users have been access to data, cost of data, timely delivery of data, and how to use data. Twenty-eight years later, these concerns still exist, but the solutions are more complicated in an increasingly commercial and international remote sensing community. As the volumes of restricted data from privately owned satellites and those of other nations grow in size and importance, the policies that affect their inclusion in a national, U.S. government-sponsored archive require interpretation and clarification.

This white paper provides policy recommendations for archiving and preserving restricted data, and is specifically directed at the National Satellite Land Remote Sensing Data Archive (NSLRSDA). This entity was established "to maintain an archive of land remote sensing data for historical, scientific, and technical purposes, including long-term global environmental monitoring" 1[1] and global change research. The term *"the Archive"* hereinafter refers to NSLRSDA.

Restricted vs. Public Domain Data: An Overview

A. Definitions:

Data from National Technical Means, classified for national security reasons, are excluded from this paper. For this paper, land satellite data are defined as measurements acquired from sensors viewing the

1[1] PL 102-555 Sec. 5652

solid surfaces of the Earth and their associated littoral areas as controlled under the purview of the statute and national policy establishing the NSLRSDA2[2]. The terms "public domain data" and "restricted data" are defined as follows:

Public domain data are data that can be copied and distributed without restriction. For example, data acquired by U.S. government-owned and operated satellite and aircraft systems are in the public domain, and are available to users of the Archive at the cost of fulfilling the user requests (COFUR)3[3]. For the most part, these data4[4] now reside in public domain archives, such as those at EROS Data Center, a network of NASA centers nationwide known as the Distributed Active Archive Centers (DAACs), and NOAA's National Data Centers.

Restricted data refer to data collected by systems other than those owned and operated by the U.S. government. These are restricted by licenses and (sometimes) by national policies of satellite-operating nations. Typically these licenses and/or policies restrict use of the data to the person or organization that is licensed to use the data. In other words, restricted data have terms and conditions for use. For example, representative licensing conditions include:

- Ownership of the data is not transferred;
- Restricted data are "provided on a confidential basis,"5[5] and are intellectual property and/or are proprietary;

2[2] PL 102-555 Sec. 5602 (2)

3[3] PL 102-555 Sec. 5602 (2)

4[4] On October 5, 1992, the *Land Remote Sensing Policy Act of 1992 (Policy Act)* was passed, repealing the *Land Remote-Sensing Commercialization Act of 1984* (*Landsat Act*). As a result, the Landsat system was returned to the public sector, beginning with Landsat 7. Only TM data less than 10 years old from Landsats 4 and 5 remain subject to commercialization. All Landsat 1, 2, 3, and 7 data and data more than 10 years old from Landsats 4 and 5 are in the public domain.

5[5] See, for example, Space Imaging license.

- Data are licensed for customer's internal use only and are not to be distributed or shared with others.

- The number of copies is limited.

B. Activities of the Archive

Acquiring data and simply storing them in a location does not constitute a true archiving activity, since the goal is to store these data for their scientific and historical value, use, and long-term preservation and access. In populating the Archive, decisions must also be made as to which data contribute to science, technology, and the history of the land. A responsibility of the Archive is to make the data easily accessible in a meaningful manner6[6] to users. Archiving includes documenting and maintaining data, and creating mechanisms that allow future users to query databases and obtain data (which can be either through non-electronic ordering procedures, or by electronic ordering procedures, e.g. downloading files via the Internet).

There are several aspects for developing and maintaining the Archive. First, it must acquire and organize data and information7[7] needed to document the dynamic state of the Earth's surface. Second, the Archive must provide access to these holdings. Finally, it must maintain and preserve these data in an accessible format that may necessitate incorporating media and technology upgrades as necessary.

C. Differences in public domain data and restricted data

1. Differences between planning and provisioning for public domain data and restricted data

6[6] The National Satellite Land Remote Sensing Data Archive Advisory Committee, *National Satellite Land Remote Sensing Data Archive Policy White Paper*, January 25, 1999. "Meaningful manner" is defined as "generally acceptable format."

7[7]Examples include ephemeris data, processing parameters, metadata, instrument characteristics, calibration parameters.

The establishment and maintenance of an archive requires significant investment. The Archive is maintained by the U.S. Department of the Interior, and has a congressional mandate for preserving, archiving, and making land satellite data available to current and future generations of users. To ensure long-term access to these data, Congress provides for the transfer of commercially acquired data to the Archive as well as for the transfer of non-U.S. Government funded data. After the expiration of any exclusive right to sell, or upon a purge of data offered to the Archive, such data are moved into the public domain.8[8]

Operating licenses for U.S. private remote sensing space systems contain requirements for reporting acquisitions and for purge notification9[9]. However, the language in these licenses is general and interpretation is non-uniform. While long-term preservation and access is not the typical mission or mandate for licensees, many U. S. private satellite operators/owners acknowledge the importance of establishing future access to historical data. Therefore, they are looking to government organizations and the Archive for guidance in meeting their license obligations.

Short-term archiving requirements are not clear. Therefore it is difficult to plan or provision for them on the part of the commercial operators/owners. The specific meanings of "reasonable cost terms" and a "reasonable period of time,"10[10] as terms and conditions of making unenhanced data available when requested by the Archive, are undefined.11[11] Further, there are no timelines specified for notification to the Archive of a data purge by a U.S. commercially licensed operator.12[12] This circumstance is exacerbated since, at present, there are no precedents or established processes. Interpretation ambiguities will grow as the number of privately owned satellites increase in numbers and capabilities.

2. Differences between accessing and acquiring public domain data and restricted data

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8[8] PL 102-555 Sec. 5652d

9[9] NOAA, General Conditions for Private Remote Sensing Space System Licenses, http://www.licensing.noaa.gov/colicense.htm, last accessed 4-27-00.

10[10] B.3, Licensing of Private Remote Sensing Space Systems, NOAA Form

11[11] B.3 paragraph 1, Licensing of Private Remote Sensing Space Systems, NOAA Form

12[12] B.3 paragraph 2, Licensing of Private Remote Sensing Space Systems, NOAA Form

The Archive is responsible for making public domain data easily accessible to users in a meaningful manner. Metadata on public domain data usually reside in databases that can be freely accessed and queried via the Internet. Typically, metadata maintained by private enterprise can also be accessed via the Internet. However, these interfaces may require registration and/or a password to gain access to information about the collection. Though not highly restrictive, access to metadata is not as easy and unfettered as it is for public domain collections.

In contrast to restricted data, public domain data are available without conditions. Restricted data conditions can stipulate who may use the data, if they can be shared or copied, and if they can be distributed to other users. Accessing metadata from public domain and restricted databases is one thing; but acquiring data from these sources is quite another matter.

Access policies for U.S. government-funded satellite data have changed over time. Originally, no conditions existed for acquiring and using data from Landsats 1, 2, and 3.13[13] With the advent of commercialization, restrictive conditions were placed on Landsats 4 and 5. In 1992, there was another change in the law and, with Landsat 7, the U.S. returned to an era of no restrictions on data.

The line between public domain and restricted collections becomes sharper and more defined because definite business requirements govern data held by the commercial satellite companies. Data acquired from commercial sources requires the user to be licensed by the provider as an authorized user of the data.

Within the past five years, emerging commercial satellite companies have established user-licensing agreements. Because many of these companies do not yet have a satellite launched that is returning data, they are still developing their data distribution and licensing agreements. For example, EarthWatch's early draft agreement was directed to commercial customers, with no provisions for use by academic or non-profit customers. Space Imaging presented yet another approach. To negotiate a statewide license for IRS 1-C data, the data are distributed through a separate "authorized dealer", thereby adding a second level of negotiations. While the data will be used by counties to augment their Enhanced 911 (E-911) emergency service projects, early drafts of the arrangement allowed only the counties' use of the data. In

13[13] *Land Remote Sensing Commercialization Act of 1984*, 15 U.S.C. 4201 et seq.

a typical E-911 application, cities, universities, state agencies, Federal agencies (local offices), and Native American Tribes, require access to these data.14[14] [EDAC1]

Comment [EDAC1]: do we want the licenses attached to this document?

Injecting additional layers of complexity are the multi-user licenses that are granted by some of the companies (e.g., EarthWatch and Space Imaging). These licenses allow multiple users within an organization the right to use data. Special fees are usually associated with these privileges.

Many commercial sources of land data are now requesting, or may shortly be requesting, the Archive to provide permanent archiving of their data and information, but are requesting certain restrictions be placed on providing these data to other users. This is a major decision for the Archive, should they accept responsibility and the cost for archiving the non-public domain data sets. The answer must be: the Archive should provide this service if the restricted data are of unique scientific, technological or historical importance for the nation, consistent with the definition of the "Basic Data Set".15[15]

3. Differences in use of public domain data and restricted data

There are no conditions placed on the use of public domain data; in contrast, the agreements discussed in the previous section place conditions on how restricted data can be used. Some or all of the following conditions are found in most commercial licenses:

- Users cannot make copies of data acquired from commercial providers (backup or internal archive copies are permitted);
- Data cannot be shared with other users, even within the same organization, unless these users are contracted to process the data;

14[14] Subsequent negotiations with Space Imaging expanded the authorized user base to include state agencies, and Native Americans. They did not, however, allow use by Federal agencies or cities. Space Imaging reserves the right to service them directly and considers their data a product on which they retain ownership.

15[15] Recommendations of the National Satellite Land Remote Sensing Data Archive Advisory Committee, December 5, 1998

- Contractors can only use the data within terms of a specific project, and must return the data to the licensee;

- Data cannot be distributed to other users; and

- Data purchased for a specific project cannot be used to perform work for a third party.

Most of these conditions apply to unenhanced16[16] data.

Restricted data are "provided on a confidential basis,"17[17] and are intellectual property and are proprietary. The use of restricted data in publications can be complex and problematic. Value added products can be used in publication. However, if the unenhanced, licensed data are to be used in publication, direct written permissions are required. In some cases, simple acknowledgement of the data source is adequate; however in other cases the procedures are complicated and cumbersome.

4. Differences between costs of public domain and restricted data

There is usually a nominal cost recovery fee (COFUR) associated with the purchase of public domain data. In many cases, data downloaded from a public domain source can be obtained at no cost to the user, for example, AVHRR data from NOAA. However, the cost associated with leasing the data from commercial providers can, in many cases, be an order of magnitude greater than the cost of public domain data. This prohibits many potential users from using the data.

II. Issues Requiring Policy Interpretation

The Archive is charged with "archiving land remote sensing data for historical, scientific, and technical purposes, including long-term global environmental monitoring." Public domain data and restricted data

16[16] The National Satellite Land Remote Sensing Data Archive Advisory Committee, *National Satellite Land Remote Sensing Data Archive Policy White Paper*, January 25, 1999.

17[17] See, for example, Space Imaging license.

will be included in the Archive. In executing its mission, the Archive will address a number of complex issues, including, but not limited to, the following:

- There are no uniform procedures as to how U. S. private satellite operators/owners should work with the Archive.
- There is no process and procedure for notifying the Archive when U.S. commercially licensed system operators choose to purge their data.
- The unique and important needs of research and educational users have not been adequately addressed.
- The public interest requirements of state, local, and tribal governments have not been adequately addressed.
- The specific meanings of "reasonable cost terms" and a "reasonable period of time," as terms and conditions of making unenhanced data available when requested by the Archive, are undefined.
- There are no timelines specified for notification to the Archive of a data purge by a U.S. commercially licensed operator.
- There are no processes in place for accepting restricted data from foreign satellite operators.
- Pricing issues
    - Many potential users are inhibited from using restricted data because the cost of these data can be orders of magnitude greater than the cost of using public domain data.
    - Some restricted data are subject to royalty arrangements.
- Terms and conditions for acquiring/transitioning/accepting/distributing restricted data to the Archive are ambiguous and/or nonexistent, including a definition of sunset provisions.

III. Recommendations:

Data in the Archive shall be unrestricted and in the public domain, except in unusual circumstances, as determined by the Secretary.

- In order to fulfill its mission, the Archive may acquire restricted data as long as the restrictions expire in a specified, finite period of time.

- Accept restricted data into the Archive only with a sunset clause on every restriction; for example less than the 10-year limit exercised by Congress regarding Landsats 4 and 5 TM data.18[18] Restricted data subject to royalty arrangements should be avoided.

- Data that do not include ephemeris data, processing parameters, metadata, instrument characteristics, and calibration parameters should be avoided.

- To improve responsiveness to officially designated disasters or for humanitarian assistance, the Archive should negotiate conditions that accommodate unconditional access to, and use of, restricted data by appropriate government organizations for their response to the emergency event.

- The Archive should recommend to NOAA that U.S commercial system licensees notify the Archive no less than 12 months prior to purging their data.

- The Archive should establish and maintain processes to encourage non-U.S. government and non-U.S. commercial satellite operators/owners to notify the Archive of purge plans.

- When accepting restricted data, the Archive should negotiate conditions that broaden its use for research and education purposes.

- When acquiring restricted data, the Archive shall negotiate as appropriate, its broader use for applications in the public interest, including those of state, local, and/or tribal governments.

- Just as with public domain data, restricted data should be available to the user in a meaningful manner.

18[18] 15 U.S.C. 4201 (1984).